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APPLICATION FOR UNITED STATES PATENT

FOR

COMMUNICATION AND/OR TRANSACTION WITH CLIENT THROUGH ACTIVE MANAGEMENT OF A CLIENT MENU HIERARCHY

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Communication and/or Transaction with Client Through Active Management of a Client Menu Hierarchy

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of data processing. More specifically, the present invention relates to methodologies associated with communicating and/or transacting with clients.

2. Background Information

With advances in microprocessor, networking and telecommunication technologies, increasingly computing devices are networked together through private and public networks, such as the Internet. As a result, increasingly, software, content as well as service providers desire to communicate and/or transact with their clients online directly.

Examples of such desired communication and/or transactions include but are not limited to

- an airline offering special airfares
- an online retailer announcing special sales
- a content provider announcing availability of new contents
- an online application service provider or a software distributor announcing service bulletins, new functions, and/or new products.

Under the prior art, many of these announcements and/or offerings are made "passively", e.g. on the provider's home page. The "passive" approach has the

desired characteristic of being "non-intrusive", i.e. the user's routine operations are not intruded upon, until the user connects to the provider's web site. However, the approach suffers from the obvious disadvantage of being "passive", i.e. the user is not alerted of the announcement or offering until the user connects to the provider's site. Further, the approach is "non-persistent", i.e. once the user accesses another page, the announcement or offering is no longer available to the user.

Alternatively, under the prior art, some announcements or offerings are made in more "active" or "assertive" manners. For examples, some announcements or offerings are made via "pushed" emails, user prompts (when a user logs in for online services), highlighting a program product and/or content offering's own icon (upon detecting the user being online), and so forth. While these more "active" or "assertive" approaches may be able to alert the user more effectively, they all tend to have the disadvantage of being intrusive, i.e. disrupting the user's routine online operation (requiring the user to at a minimum "cancel" the notification if the user elects not to accept the offering at the time, e.g. canceling an "upgrade available notice" if elected not to upgrade at the moment). Further, many also lack the desired characteristic of "persistency". That is, once the user "cancels", the announcement or offering is "gone", until the reoccurrence of the triggering event, causing the intrusive announcement or offering to be made again.

Accordingly, an improved approach to communicate and/or transact with clients is desired.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references denote similar elements, and in which:

Figure 1 illustrates a network view of the present invention, in accordance with one embodiment;

Figure 2 illustrates a method view of the present invention, including operational flows of the relevant aspects of the menu managers (server and client side) of **Fig. 1**, in accordance with one embodiment;

Figures 3a-3b illustrate an end user view of the present invention, in accordance with one application;

Figures 4a-4b illustrate an end user view of the present invention, in accordance with another application;

Figures 5a-5b illustrate an end user view of the present invention, in accordance with yet another application;

Figures 6a-6b illustrate an end user view of the present invention, in accordance with yet another application; and

Figure 7 illustrates an example computer system suitable for use to practice the present invention, in accordance with one embodiment.

DETAILED DESCRIPTION OF THE INVENTION

The present invention includes a more effective approach to communicating and/or transacting with a client through active management of a menu hierarchy on a client, that is more relatively more persistent and less intrusive to the client.

In the description to follow, various aspects of the present invention will be described. However, the present invention may be practiced with only some of aspects described. For purposes of explanation, specific numbers, materials and configurations are set forth each of these aspects in order to provide a thorough understanding. However, each of these aspects may be practiced without the specific details. In other instances, well known features are omitted or simplified in order not to obscure the present invention.

Parts of the description will be presented in terms of operations performed by a processor based device, using terms such as menu items, sub-menu items, resources, determining, adding, changing, and the like, consistent with the manner commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. These quantities take the form of electrical, magnetic, or optical signals, and the operations involve storing, transferring, combining, and otherwise manipulating through electrical and/or mechanical components of the processor based device. The term processor include microprocessors, micro-controllers, digital signal processors, and the like, that are standalone, adjunct or embedded.

Various operations will be described as multiple discrete steps in turn, in a manner that is most helpful in understanding the present invention. However, the order of description should not be construed as to imply that these operations are necessarily order dependent. In particular, these operations need not be performed

in the order of presentation. Further, the description repeatedly uses the phrase "in one embodiment", which ordinarily does not refer to the same embodiment, although it may.

Referring now to **Figures 1-2**, wherein two diagrams illustrating a network view and a method view of the present invention, in accordance with one embodiment, are shown. As illustrated in **Fig. 1**, in accordance with the present invention, a software, content or service provider (hereinafter, simply provider), through its computing equipment, such as server **102**, communicates or transacts with its clients, such as client **108**, through active management of a menu hierarchy, such as menu **110**, of client **108**. That is, for the present invention, each of clients **108** is assumed to include a graphical end user interface that includes menu hierarchies (see e.g. **Fig. 3a**), and underlying operating system services in support of such graphical end user interface. One example of such clients is a computing device equipped with one of the versions of the Windows® Operating System available from Microsoft Corporation of Redmond, WA.

For the illustrated embodiment, server **102** and client **108** are equipped with the server and client side versions of menu manager **104** and **112** of the present invention respectively. Together, menu managers **104** and **112** effectuate the desired persistent but relatively less intrusive manner of communication and/or transaction between provider of server **102** and its clients **108**, through active management of at least one each of the menu hierarchies of clients **108**, to be described more fully below.

Server **102** and clients **108** are coupled to each other through network fabric **106**. Server **102** represents a broad range of server computing devices known in the art, including but are not limited to those available from manufacturers such as

IBM of Armonk, NY, and Sun Microsystems of Menlo Park, CA. Similarly, except for the earlier mentioned assumed inclusion of a graphical user interface that includes menu hierarchies and the underlying operating system services in support of such graphical user interface, clients **108** also represent a broad range of computing devices known in the art, including but are not limited to wireless mobile phones, palm sized personal digital assistants, notebook computers, desktop computers and set top boxes. Network fabric **106** represents a broad range of private and/or public networks or interconnected networks, such as the Internet.

Server **102** communicates or transacts with their clients **108** using a selected one of the messaging and communication protocols known in the art. Examples of such messaging and communication protocols include but are not limited to the Hypertext Transmission Protocol (HTTP) and the Transmission Control Protocol/Internet Protocol (TCP/IP).

The types of communications and/or transactions that may be effectuated persistently, but relatively non-intrusive, through the present invention, include but are not limited to

- software, content and/or service providers making available or offering updates, new versions and/or new like kind of software, content and/or services to their clients;
- software and/or service providers communicating service bulletins to their clients;
- collaboration applications making available and/or announcing the availability of updates to, new versions of and/or new like kind of shared resources to their clients. An example of a shared resource is a shared document.

Hereinafter, unless the context requires (such as usage in the collaboration context above), usage of the term "resource" shall be broadly construed to include executables, text files, audio files, video files, multi-media files, web pages and the like.

Referring now more specifically to **Fig. 2**, in accordance with the present invention, a provider, through its server **102**, more specifically, its menu manager **104**, initiates a communication or transaction with one of its clients **108** by sending to the client, more specifically, its menu manager **112**, a distribution collection of sub-menu items for a menu item, block **202**. For the illustrated embodiment, menu manager **104** also provides menu manager **112** with the visual representations of the sub-menu items, and a temporal substitute visual representation of the menu item. The menu item may be located at any level of the menu hierarchy, and the sub-menu items are by definitions "child" menu items at the next level. Thus, a menu item may in and of itself is a sub-menu item of another "parent" menu item.

The sub-menu items correspond to the resources that are objects of the communication or transaction. In one embodiment, the resources are 3D games, their trial out versions, or announcements about the 3D games; and the sub-menu items are locators identifying the storage locations of the 3D games or their trial out versions or their announcements. The visual representations of the sub-menu items are titles of the 3D games. The storage locations identified by the locators may be file storage locations within a file subsystem of the client, or storage locations remotely disposed away from the client. An example of the locator of the former type is an access path to the file storage location, and an example of the locator of the latter type is a uniform resource locator (URL).

In one embodiment, the provider, more specifically, menu manager **104** of server **102** initiates the transmission of the distribution collection and the companion

visual representations, in response to a client **108** checking in with server **102**. Such periodic check-in capability may be pre-provided to a client **108**, as an integral part of the initial installation of the product, content and/or agent for accessing the services of the provider of server **102**. In another embodiment, the provider, more specifically, menu manager **104** of server **102** initiates the transmission of the distribution collection and the companion visual representations to known clients on a periodic basis. The client lists may for example be established through a registration process, registering users of provider's product, content or service. In yet other embodiments, the present invention may be practiced with other communication or transaction initiation conditions.

Continuing to refer particularly to **Fig. 2**, for applications where the sub-menu items refer to storage locations within a file subsystem of the client, menu manager **104** of server **102** also transmits the resources to the client **108**, block **204**.

Upon receipt of the distribution collection of sub-menu items, the associated visual representations, and optionally, the resources itself, menu manger **112** of the receiving client **108** determines if one or more of the sub-menu items are not part of the operational collection of the sub-menu items of the menu item, block **206**. In one embodiment, the operational collection is menu "entity" utilized by the underlying operating system in determining the current content of the particular menu hierarchy.

If all sub-menu items of the distribution collection are part of the operational collection, the operational collection is considered to be current, and menu manager **112** takes no further action.

However, if one or more sub-menu items of the distribution collection are not part of the operational collection, menu manager **112** adds the "missing" (new) sub-menu items to the operational collection, block **208**. For the illustrated embodiment,

menu manager **112** further temporarily changes the visual representation of the menu item from its current visual representation (first state), which is typically its "normal" visual representation, to the temporal replacement visual representation provided (second state), block **208**. The temporal visual representation is employed to draw the user's attention to the fact that "new" sub-menu items have been added for the menu item.

Accordingly, when the user drawn by the temporal visual representation, selects the menu item, the "new" sub-menu items become visible to the user. However, the "new" sub-menu items are "hidden" from the user if the user elects to ignore the transformation of the visual representation of the menu items, and proceeds with his or her desire navigation of the menu hierarchy. Thus, the desired relatively non-intrusive attribute is achieved.

Further, until the "added" sub-menu items are "removed" (to be described more fully below), the "added" sub-menu items remain visible to the user whenever the menu item is selected. Accordingly, the desired persistency attribute is also advantageously achieved.

For the illustrated embodiment, menu manager **112** further subsequently restores the visual representation of the menu item back to its "normal" state (i.e. from the earlier mentioned second state back to the first state), upon occurrence of a predetermined event **210**. The predetermined event is application dependent.

In one embodiment, menu manager **112** restores the visual representation of the menu item back to its "normal" state after the user has accepted the offer extended by the "new" sub-menu item or items, or acted upon the information provided by the "new" sub-menu item or items. In an alternate embodiment, menu manager **112** restores the visual representation of the menu item back to its "normal" state after a predetermined threshold number of the "added" sub-menu

items have been selected, regardless whether the user has accepted any of the offers extended or acted upon any of the information provided. In yet another embodiment, menu manager **112** restores the visual representation of the menu item back to its "normal" state after a predetermined period of elapsed time.

In various embodiments, as part of the process of restoring the visual representation of the menu item back to its "normal" state, menu manager **112** may also remove any of the "added" sub-menu items not accepted, not acted upon or not selected by the user. In a preferred practice of the present invention, disposition of the "added" sub-menu items are also addressed as part of the "acceptance" process when the offer extended or information provided is acted upon by the user.

Referring now to **Figures 3a-3b** through **6a-6b**, wherein eight block diagrams illustrating four example applications of the present invention, are shown. As will be readily apparent from the description to follow, these are exemplary illustrations, and the present invention may be practiced with product, content and/or service provision, offering, and/or announcement.

Turning now first to **Figures 3a-3b**, wherein an example application of the present invention to the provision, offering or announcement of new 3D games is illustrated. For the illustrated example, as shown in **Fig. 3a**, client **108** includes an example graphical end user interface having example menu hierarchy **300** that includes menu panes **302-306**. Menu pane **302** includes menu items "Program Files", "Favorites", "Documents", and so forth. Menu pane **304**, displayed in response to the selection of menu item "Program files", includes menu items "3D games", "Office", and so forth. Menu pane **306**, displayed in response to the selection of menu item "3D games", includes menu items "Game A", "Game B", and so forth.

In accordance with the present invention, a 3D game provider would make available or otherwise announce the available of a new 3D game, "Game C", by sending to the client a distribution collection of sub-menu items including sub-menu item for "Game C", its visual representation, and a temporal substitute visual representation for "3D Games". For the example illustration, the "normal" visual representation of the family of 3D games is simply the title "3D Games" and an associated icon, and the temporal substitute visual representation is simply the annotated title "3D Games, New Games!" and the associated icon, to draw the user's attention. In alternate embodiments, more or less "assertive" temporal substitute visual representations may be employed for menu item to alert and/or attract the user's attention to the fact that "new" sub-menu items have been added for the menu item.

Thus, whenever the user selects menu item "Program Files" (menu pane **302**) in the course of normal navigation of menu hierarchy **300'**, the user will be presented with the temporal substitute visual representation for the family of 3D games to draw his/her attention (menu pane **304'**). If the user responds and selects the "3D Game" menu item, the user will be presented with the sub-menu items, including sub-menu item for "new" game, "Game C" (menu pane **306'**). Recall that the client may actually be provided with "Game C", and the sub-menu item comprises an access path pointing to a location within a local file subsystem where "Game C" is located. Alternatively, the sub-menu item may merely correspond to an offering or announcement of "Game C", which may be locally or remotely disposed.

Note that if the user elects to ignore the transformation of the visual representation of "3D Game", and proceeds with his/her desired navigation, the user may do so without being interrupted (i.e. having to "cancel" the offer or announcement as in the prior art). Further, the offer or announcement will be

available for subsequent selection until it is removed (based on an application dependent criteria). Accordingly, the user may be provided, offered or informed of the availability of "Game C" in a persistent, but relatively non-intrusive manner.

Note that the above example applies equally to the provision or announcement of service bulletins for a program product or service.

Figures 4a-4b illustrate another example application of the present invention to the provision, offering or announcement of media contents. Similar to the earlier example, the client **108** includes an example graphical end user interface having example menu hierarchy **400** that includes menu panes **402-406**. Menu pane **402** includes menu items "Program files", "Favorites", "Documents", and so forth. Menu pane **404**, displayed in response to the selection of menu item "Favorites", includes menu items "Company XYZ" (e.g. an online retailer), "Media" (e.g. media from a particular distributor, or media of a particular type, such as movies or music), and so forth. Menu pane **406**, displayed in response to the selection of menu item "Media", includes menu items "Content A", "Content B", and so forth.

In accordance with the present invention, a media content provider would make available or otherwise announce the available of a "new" media content, "Content C", by sending to the client a distribution collection of sub-menu items, including sub-menu item for "Content C", its visual representation, and a temporal substitute visual representation for "Media". For the example illustration, the "normal" visual representation of the family of media is simply the title "Media" and an associated icon, and the temporal substitute visual representation is simply the annotated title "Media, New Contents!" and the associated icon, to draw the user's attention.

Thus, whenever the user selects menu item "Favorites" (menu pane **402**) in the course of normal navigation of menu hierarchy **400'**, the user will be presented

with the temporal substitute visual representation for the family of media contents to draw his/her attention. If the user responds and selects the "Media" menu item (menu pane **404'**), the user will be presented with the sub-menu item for "new" content, "Content C" (menu pane **406'**). Recall that the client may actually be provided with "Content C", and the sub-menu item comprises an access path pointing to a location within a local file subsystem where "Content C" is located. Alternatively, the sub-menu item may merely correspond to an announcement of "Content C", which may be locally or remotely disposed.

Note that if the user elects to ignore the transformation of the visual representation of "Media", and proceeds with his/her desired navigation, the user may do so without being interrupted (i.e. having to "cancel" the offer or announcement as in the prior art). Further, the offer or announcement will be available for subsequent selection until it is removed (based on an application dependent criteria). Accordingly, the user may be provided, offered or informed of the availability of "Content C" in a persistent, but relatively non-intrusive manner.

Note that "Media" may be a "bulletin board", and the "contents" may be the various "information posting" of the "bulletin board". Further, the above example applies equally to "Company XYZ" in the offering and/or announcement of special offers, sales and so forth.

Figures 5a-5b illustrate another example application of the present invention to the sharing of documents in a collaboration application. Similar to the earlier example, the client **108** includes an example graphical end user interface having example menu hierarchy **500** that includes menu panes **502-506**. Menu pane **502** includes menu items "Program files", "Favorites", "Documents", and so forth. Menu pane **504**, displayed in response to the selection of menu item "Documents", includes menu items "Project X", "Project Y", and so forth. Menu pane **506**,

displayed in response to the selection of menu item "Project Y", includes menu items "Document A", "Document B", and so forth.

In accordance with the present invention, a collaboration application would make available or otherwise announce the available of a "new" document, "Document C", by sending to the client a distribution collection including sub-menu item for "Document C", its visual representation, and a temporal substitute visual representation for "Project Y". For the example illustration, the "normal" visual representation of the family of media is simply the title "Project Y" and an associated icon, and the temporal substitute visual representation is simply the annotated title "Project Y, New Documents!" and an associated icon, to draw the user's attention.

Thus, whenever the user selects menu item "Documents" (menu pane **502**) in the course of normal navigation of menu hierarchy **500'**, the user will be presented with the temporal substitute visual representation for the family of media contents to draw his/her attention. If the user responds and selects the "Project Y" menu item (menu pane **504'**), the user will be presented with the sub-menu item for "new" content, "Document C" (menu pane **506'**). Recall that the client may actually be provided with "Document C", and the sub-menu item comprises an access path pointing to a location within a local file subsystem where "Document C" is located. Alternatively, the sub-menu item may merely correspond to an announcement of "Document C", which may be locally or remotely disposed.

Note that if the user elects to ignore the transformation of the visual representation of "Project Y", and proceeds with his/her desired navigation, the user may do so without being interrupted (i.e. having to "cancel" the offer or announcement as in the prior art). Further, the offer or announcement will be available for subsequent selection until it is removed (based on an application

dependent criteria). Accordingly, the user may be provided, offered or informed of the availability of "Document C" in a persistent, but relatively non-intrusive manner.

Figures 6a-6b illustrate yet another example application of the present invention to the provision, offering or announcement of a new tool function of an application. The application may for example be a word processing application, a spreadsheet application, an email application and so forth. Similar to the earlier example, the particular application of the client **108** includes an example graphical end user interface having example menu hierarchy **600** that includes menu button **602**, and menu panes **604-606**. Menu pane **604**, displayed in response to the selection of menu button "Tools" **602**, includes menu items for tools "Group X", "Group Y", and so forth. Menu pane **606**, displayed in response to the selection of the menu item for tools "Group Y", includes menu items "Tool A", "Tool B", and so forth.

In accordance with the present invention, the application provider would make available or otherwise announce the available of a "new" tool, "Tool C", by sending to the client a distribution collection of sub-menu items, including sub-menu item for "Tool C", its visual representation, and a temporal substitute visual representation for "Group Y". For the example illustration, the "normal" visual representation of the family of tools is simply the title "Group Y" and its associated icon, and the temporal substitute visual representation is simply the annotated title "Group Y, New Tools!" and its associated icon, to draw the user's attention.

Thus, whenever the user selects menu button "Tools" **602** in the course of normal navigation of menu hierarchy **600'**, the user will be presented with the temporal substitute visual representation for the family of tools "Group Y" to draw his/her attention. If the user responds and selects the tools "Group Y" menu item (menu pane **604'**), the user will be presented with the sub-menu item for "new" tool,

"Tool C" (menu pane **606'**). Recall that the client may actually be provided with "Tool C", and the sub-menu item comprises an access path pointing to a location within a local file subsystem where "Tool C" is located. Alternatively, the sub-menu item may merely correspond to an announcement of "Tool C", which may be locally or remotely disposed.

Note that if the user elects to ignore the transformation of the visual representation of tools "Group Y", and proceeds with his/her desired navigation, the user may do so without being interrupted (i.e. having to "cancel" the offer or announcement as in the prior art). Further, the offer or announcement will be available for subsequent selection until it is removed (based on an application dependent criteria). Accordingly, the user may be provided, offered or informed of the availability of "Tool C" in a persistent, but relatively non-intrusive manner.

For ease of understanding, each of the above examples has been illustrated with the menu item being located at the "second" shown level of the menu hierarchy and the sub-menu items located at the "third" shown level of the menu hierarchy. However, as those skilled in the art would readily appreciate, the present invention is not so restricted, and the present invention may be practiced with the menu and sub-menu items located at any two levels of a menu hierarchy.

Example Computer System

Figure 7 illustrates an example computer system suitable for use as a server or a client to practice the present invention, in accordance with one embodiment. As shown, computer system **700** includes one or more processors **702** and system memory **704**. Additionally, computer system **700** includes mass storage devices **706** (such as diskette, hard drive, CDROM and so forth), input/output devices **708** (such as keyboard, cursor control and so forth) and communication interfaces **710**

(such as network interface cards, modems and so forth). The elements are coupled to each other via system bus **712**, which represents one or more buses. In the case of multiple buses, they are bridged by one or more bus bridges (not shown). Each of these elements performs its conventional functions known in the art. In particular, system memory **704** and mass storage **706** are employed to store a working copy and a permanent copy of the programming instructions implementing the menu manager (the server side or the client side) of the present invention. The permanent copy of the programming instructions may be loaded into mass storage **706** in the factory, or in the field, as described earlier, through a distribution medium (not shown) or through communication interface **710** (from a distribution server (not shown). The constitution of these elements **702-712** are known, and accordingly will not be further described.

Conclusion and Epilogue

Thus, it can be seen from the above descriptions, a novel method and apparatus for a server to communicate or transact with a client has been described. The novel method/apparatus is advantageously persistent and relatively non-intrusive. While the present invention has been described in terms of the above illustrated embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. The description is thus to be regarded as illustrative instead of restrictive on the present invention.
